

1 ABSTRACT OF THE DISCLOSURE

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3 A debugging interface includes a pair of decoders and an
4 event history buffer coupled to the sequencer of a processor. The
5 first decoder is coupled to the program counter of the sequencer
6 and the Instruction RAM of the processor. The second decoder is
7 coupled to the cause register of the sequencer and the event
8 history buffer is also coupled to the cause register. The first
9 decoder provides a three bit real time output which is indicative
10 of the processor activity on a cycle by cycle basis. The three
11 bit output indicates seven different conditions: whether the last
12 instruction executed by the processor was an inc, an exception, an
13 exception with no event history buffer entry, or a branch taken,
14 whether there has been no instruction executed since the last
15 clock cycle, and whether a jump was an immediate jump or a jump to
16 a register. The event history buffer is loaded with more detailed
17 information about the instruction last executed when the first
18 decoder indicates that the last instruction was an exception or a
19 jump to a register, and when there is a change in state of an
20 interrupt line or an internal processor exception. An exemplary
21 implementation of the debugging interface is embodied on an ASIC
22 chip having three processors. Each processor is provided with a
23 first and second decoders and a single event history buffer for
24 all processors is provided on the chip.